

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Ralf BERTRAM et al. Confirmation No.: 3541  
Appln. No. : 10/007,583 Group Art Unit: 3621  
Filed : December 5, 2001 Examiner: C.O. Sherr  
For : SYSTEM AND METHOD FOR ITEM RECOMMENDATION

## APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Window, Mail Stop Appeal Brief-Patents  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314  
Sir:

This appeal is from the Examiner's final rejection of claims 1-19 as set forth in the Final Office Action of July 9, 2007. A Notice of Appeal, in response to the July 9, 2007 Final Office Action, was filed on October 9, 2007, and the instant Appeal Brief is being filed by the two-month due date of December 10, 2007 (December 9, 2007 being a Sunday).

Payment in the amount of \$ 510.00 is being concurrently submitted as payment of the requisite fee under 37 C.F.R. 41.20(b)(2). No additional fee is believed to be required for filing the instant Appeal Brief. However, if for any reason a necessary fee is required for consideration of the instant paper, authorization is hereby given to charge the fee for the Appeal Brief and any necessary extension of time fees to Deposit Account No. 09-0457.

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**(I) REAL PARTY IN INTEREST**

The real party in interest is International Business Machines Corporation by an assignment recorded in the U.S. Patent and Trademark Office on December 5, 2001, at Reel 012370 and Frame 0956.

**(II) RELATED APPEALS AND INTERFERENCES**

No related appeals and/or interferences are pending.

**(III) STATUS OF THE CLAIMS**

Claims 1-19 stand finally rejected. Claims 1-19 are pending and are the subject of this appeal. The claims in issue are attached in the "Claims Appendix".

**(IV) STATUS OF THE AMENDMENTS**

A Response under 37 C.F.R. § 1.116 was filed August 9, 2007, requesting reconsideration of the finally rejected claims. The Examiner responded with an Advisory Action mailed September 20, 2007, indicating that the Response was considered, but did not place the application in condition for allowance. Appellant submits that no other amendments after final have been filed; however, all amendments to the claims have been entered.

**(V) SUMMARY OF THE CLAIMED SUBJECT MATTER****A. The Claimed Subject Matter****1. INDEPENDENT CLAIM 1**

With reference to pages 6-28 of the instant application and to the figures, and by way of non-limiting example, the invention provides for a computerized method (see

page 6, lines 9-26 of the instant specification) for generating a recommendation of an item to an advisee, comprising the steps of receiving a recommendation request comprising a selected item list from an advisee for a recommendation by a recommendation system (see page 18, lines 6-9 and page 21, lines 18-19 of the instant specification) and in response to the recommendation request, computing a plurality of similarity factors (see page 10, lines 22-28 and page 11, lines 15-28 of the instant specification) based on: at least one advisee profile from at least one newly rated item and determining which at least one user has already rated the item, wherein the advisee profile comprises a plurality of records, each record including a user identifier, an item identifier, and a rating value, such that each record is linked in a first and a second dimension (see page 22, lines 3-29 and page 23, lines 2-12 of the instant specification) and items from the selected item list that indicate similarity between the advisee and a plurality of users of the recommendation system who have previously provided ratings of items from the selected item list (see page 20, line 25 to page 21, line 1 of the instant specification). The method also includes selecting, from the plurality of users of the recommendation system, neighboring users to the advisee, according to the similarity factors (see page 14, line 24 to page 15, line 24 of the instant specification) and generating a recommendation of at least one item of the selected item list, according to the previously provided ratings of the at least one item by the neighboring users (see page 16, lines 21-27 and page 21, lines 19-22 of the instant specification).

**2. INDEPENDENT CLAIM 7**

With reference to pages 6-28 of the instant application and to the figures, and by way of non-limiting example, the invention provides for a user profile for a recommendation system (see page 7, line 2 to page 8, line 33 of the instant specification), comprising a plurality of records, each record including a user identifier, an item identifier, and a rating value (see page 22, lines 3-17 of the instant specification). Each record is linked in a first and a second dimension and the first dimension links records with a same user identifier in a sequence according to the item identifier (see page 22, lines 3-29 and page 23, lines 2-12 of the instant specification). The second dimension links records with a same item identifier in a sequence according to the user identifier (see page 23, lines 2-28 of the instant specification).

**3. INDEPENDENT CLAIM 8**

With reference to pages 6-28 of the instant application and to the figures, and by way of non-limiting example, the invention provides for a computerized method (see page 6, lines 9-26 of the instant specification) for generating a recommendation of an item to an advisee (see page 16, lines 21-27 and page 21, line 19-22 of the instant specification), comprising the steps of receiving a recommendation request comprising a selected item list from an advisee for the recommendation by a recommendation system (see page 18, lines 6-9 and page 21, line 18-19 of the instant specification) and in response to the recommendation request, computing a plurality of similarity factors based on at least one advisee profile from at least one newly rated item and determining which at least one user has already rated the item (see page 22, lines 3-29

and page 23, line 2-12 of the instant specification). The method also includes selecting a first set of users from a group of users of the recommendation system based on the selected item list (see page 25, lines 5-12 of the instant specification), selecting neighboring users from the first set of users based on similarities between the advisee and each member of the first set of users (see page 25, line 13 to page 26, line 26 of the instant specification), and generating a recommendation of at least one item from the selected item list based on ratings provided by each neighboring user (see page 16, lines 21-27 and page 21, line 19-22 of the instant specification).

#### **(VI) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

**Whether claims 1-19 are improperly rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,029,195 issued to HERZ alone.**

#### **(VII) ARGUMENT RE. 103(a) REJECTION**

**The rejection of claims 1-19 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,029,195 issued to HERZ alone is improper and should be withdrawn.**

##### **REJECTION OF INDEPENDENT CLAIM 1 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Independent claim 1 recites, in pertinent part:

computing a plurality of similarity factors based on:

at least one advisee profile from at least one newly rated item and determining which at least one user has already rated the item, wherein the advisee profile for a recommendation system comprises a plurality of records, each record including a user identifier, an item identifier, and a

rating value, such that each record is linked in a first and a second dimension; and generating a recommendation of at least one item of the selected item list, according to the previously provided ratings of the at least one item by the neighboring users.

In rejecting independent claim 1, the Examiner points to col. 25, lines 46-62 and col. 3, lines 1-10 of HERZ as disclosing "receiving a recommendation request comprising a selected item list from an advisee for a recommendation by a recommendation system". Appellants disagree. The noted language of HERZ merely states the following:

Note that for bottom-up clustering to work, it must be possible to apply the clustering algorithm to a set of existing clusters. This requires a notion of the distance between two clusters. The method disclosed above for measuring the distance between target objects can be applied directly, provided that clusters are profiled in the same way as target objects. It is only necessary to adopt the convention that a cluster's profile is the average of the target profiles of all the target objects in the cluster; that is, to determine the cluster's value for a given attribute, take the mean value of that attribute across all the target objects in the cluster. For the mean value to be well-defined, all attributes must be numeric, so it is necessary as usual to replace each textual or associative attribute with its decomposition into numeric attributes (scores), as described earlier. For example, the target profile of a single Woody Allen film would assign "Woody-Allen" a score of 1 in the "name-of-director" field

The information retrieval computer generates an article profile for the request and then retrieves articles with profiles similar to the profile generated for the request. These requests can then be refined using "relevance feedback", where the user actively or passively rates the articles retrieved as to how close the information contained therein is to what is desired. The information retrieval computer then uses this relevance feedback information to refine the request profile and the process is repeated until the user either finds enough articles or tires of the search.

There is no language in the noted passages even remotely disclosing receiving a recommendation request comprising a selected item list from an advisee for a

recommendation by a recommendation system. Retrieving articles with profiles similar to the profile generated for a request is simply not the same as receiving a recommendation request comprising a selected item list from an advisee for a recommendation by a recommendation system. Nor has the Examiner shown how the noted language can be read or interpreted to disclose the recited feature.

The Examiner also points to col. 3, lines 7-10 of HERZ as disclosing "in response to the recommendation request, computing a plurality of similarity factors based on: at least one advisee profile from at least one newly rated item and determining which at least one user has already rated the item, wherein the advisee profile comprises a plurality of records, each record including a user identifier, an item identifier, and a rating value, such that each record is linked in a first and a second dimension".

Appellants disagree. The noted language of HERZ merely states the following:

The information retrieval computer then uses this relevance feedback information to refine the request profile and the process is repeated until the user either finds enough articles or tires of the search.

There is no language whatsoever in the noted passage disclosing in response to the recommendation request, computing a plurality of similarity factors based on: at least one advisee profile from at least one newly rated item and determining which at least one user has already rated the item, wherein the advisee profile comprises a plurality of records, each record including a user identifier, an item identifier, and a rating value, such that each record is linked in a first and a second dimension. Indeed, the above-noted language of HERZ says nothing about rating items, much less, determining which at least one user has already rated the item. Nor has the Examiner

shown how the noted language can be read or interpreted to disclose the recited feature. Instead, the noted language merely discloses using relevance feedback information.

The Examiner additionally points to col. 3, lines 1-3 and col. 6, lines 38-45 of HERZ as disclosing items from the selected item list that indicate similarity between the advisee and a plurality of users of the recommendation system who have previously provided ratings of items from the selected item list. Appellants disagree. The noted language of HERZ merely states the following:

The information retrieval computer generates an article profile for the request and then retrieves articles with profiles similar to the profile generated for the request.

In all these cases, the information delivery process in the preferred embodiment is based on determining the similarity between a profile for the target object and the profiles of target objects for which the user (or a similar user) has provided positive feedback in the past. The individual data that describe a target object and constitute the target object's profile are herein termed "attributes" of the target object.

There is no language whatsoever in the noted passages disclosing items from the selected item list that indicate similarity between the advisee and a plurality of users of the recommendation system who have previously provided ratings of items from the selected item list. Obtaining positive feedback from a user is simply not the same as obtaining from the advisee and a plurality of users ratings of items from the selected item list. Nor has the Examiner shown how the noted language can be read or interpreted to disclose the recited feature.

The Examiner additionally points to col. 12, lines 25-27 and col. 20, lines 1-22 of

HERZ as disclosing "selecting, from the plurality of users of the recommendation system, neighboring users to the advisee, according to the similarity factors".

Appellants disagree. The noted language of HERZ merely states the following:

As always, the notion is that similar consumers buy similar products. It should be noted that diverse sorts of information are being used here to characterize consumers.

The method of determining a user's interest relies on the following heuristic: when X and Y are similar target objects (have similar attributes), and U and V are similar users (have similar attributes), then topical interest  $f(U, X)$  is predicted to have a similar value to the value of topical interest  $f(V, Y)$ . This heuristic leads to an effective method because estimated values of the topical interest function  $f(*, *)$  are actually known for certain arguments to that function: specifically, if user V has provided a relevance-feedback rating of  $r(V, Y)$  for target object Y, then insofar as that rating represents user V's true interest in target object Y, we have  $r(V, Y) = q(V, Y) + f(V, Y)$  and can estimate  $f(V, Y)$  as  $r(V, Y) - q(V, Y)$ . Thus, the problem of estimating topical interest at all points becomes a problem of interpolating among these estimates of topical interest at selected points, such as the feedback estimate of  $f(V, Y)$  as  $r(V, Y) - q(V, Y)$ . This interpolation can be accomplished with any standard smoothing technique, using as input the known point estimates of the value of the topical interest function  $f(*, *)$ , and determining as output a function that approximates the entire topical interest function  $f(*, *)$ .

Appellants fail to recognize any language in the noted passage disclosing selecting, from the plurality of users of the recommendation system, neighboring users to the advisee, according to the similarity factors. Determining a user's interest using a heuristic is simply not the same as selecting, from the plurality of users of the recommendation system, neighboring users to the advisee, according to the similarity factors. Nor has the Examiner shown how the noted language can be read or interpreted to disclose the recited feature.

The Examiner also points to col. 70, lines 1-7 of HERZ as disclosing "generating a recommendation of at least one item of the selected item list, according to the

previously provided ratings of the at least one item by the neighboring users".

Appellants disagree. The noted language of HERZ merely states the following:

1. Automatically create a "customized newspaper".

User profiling enabling custom recommendations may be achieved by purely passive means of user activity data or if desired, it can refine and automate the selection process of articles within user selected categories of interest as well as recommend articles within different categories which the user is likely to prefer as evidenced through past behaviors.

Appellants fail to recognize any language in the noted passages disclosing generating a recommendation of at least one item of the selected item list, according to the previously provided ratings of the at least one item by the neighboring users.

Indeed, the Examiner has not even identified the recited selected item list. Nor has the Examiner shown how the noted language can be read or interpreted to disclose the recited feature.

On page 9 of the Office Action, the Examiner acknowledges that HERZ "does not utilize identical terminology with respect to the instant case", but explains that "it would have been obvious to one of ordinary skill in the art to adapt the invention in Herz for the uses in the instant invention in order to facilitate sales". Completely absent from this conclusion, however, is any explanation of even the similarities between the so-called non-identical terminology. Nor has the Examiner identified any prior art basis for modifying HERZ "to facilitate sales." Appellants note that HERZ relates to an electronic identification system determining a rank order listing of news articles which may be of interest to a user (see col. 1, lines 18-42 HERZ).

Appellants submit that the Examiner has provided only conclusions of

obviousness and neglects to set forth any prior art basis for modifying the teachings of HERZ. In establishing a *prima facie* case of obviousness under 35 U.S.C. § 103, it is incumbent upon the Examiner to provide a reason *why* one of ordinary skill in the art would have found it obvious to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See *Ex parte Clapp*, 227 USPQ 972 (B.P.A.I. 1985). As noted above, the applied document is silent with regard to a number of recited features and relates to an information system which functions in a different manner. Moreover, HERZ does not teach or suggest modifying the structure or operation of HERZ in the manner asserted by the Examiner.

Because the art of record fails to provide any reasonable explanation why one ordinarily skilled in the art would utilize such an arrangement, and/or fails to disclose or suggest the problems that such an arrangement would address, Appellants submit that the art of record fails to provide the requisite rationale as to *why* one ordinarily skilled in the art would modify HERZ to include features of the invention in the manner asserted by the Examiner. That is, Appellants submit that because the Examiner has not set forth any basis or reason found in the art of record for modifying HERZ, the instant rejection has no basis in the art of record, such that the rejection is improper and should be withdrawn.

Rejections based on 35 U.S.C. § 103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The Examiner has the initial duty of supplying the factual basis for the rejection and may not, because of doubt that the invention is patentable, resort to speculation,

unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis. See *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967). As stated in *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984):

[t]o imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.

Appellants submit that the only reason to modify the teachings of the applied reference in the manner proposed by the Examiner is the result of a review of Appellants' disclosure and the application of impermissible hindsight.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least independent claim 1.

#### **REJECTION OF INDEPENDENT CLAIM 7 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 7 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Independent claim 7 recites, in pertinent part:

each record including a user identifier, an item identifier, and a rating value, wherein each record is linked in a first and a second dimension, the first dimension linking records with a same user identifier in a sequence according to the item identifier, and the second dimension linking records with a same item identifier in a sequence according to the

user identifier.

In rejecting independent claim 7, the Examiner points to col. 39, lines 1-22 of HERZ as disclosing “a user profile for a recommendation system, comprising a plurality of records, each record including a user identifier, an item identifier, and a rating value, wherein each record is linked in a first and a second dimension, the first dimension linking records with a same user identifier in a sequence according to the item identifier, and the second dimension linking records with a same item identifier in a sequence according to the user identifier”. Appellants disagree. The noted language of HERZ merely states the following:

Specifically, letting S denote the server that is directly associated with user U's client processor, the proxy server communicates with server S (and thence with user U), either through anonymizing mix paths that obscure the identity of server S and user U, in which case the proxy server knows user U only through a secure pseudonym, or else through a conventional virtual point-to-point connection, in which case the proxy server knows user U by user U's address at server S, which address may be regarded as a non-secure pseudonym for user U.

2. A second function of the proxy server is to record user-specific information associated with user U. This user-specific information includes a user profile and target profile interest summary for user U, as well as a list of access control instructions specified by user U, as described below, and a set of one-time return addresses provided by user U that can be used to send messages to user U without knowing user U's true identity. All of this user-specific information is stored in a database that is keyed by user U's pseudonym (whether secure or non-secure) on the proxy server.

There is no language in the noted passage disclosing a user profile for a recommendation system, comprising a plurality of records, each record including a user identifier, an item identifier, and a rating value, wherein each record is linked in a first and a second dimension, the first dimension linking records with a same user identifier

in a sequence according to the item identifier, and the second dimension linking records with a same item identifier in a sequence according to the user identifier. Nor has the Examiner shown how the noted language can be read or interpreted to disclose or suggest the recited feature. Indeed, the Examiner has not even bothered to specify which features in HERZ that can be characterized as a user identifier, an item identifier, a rating value, or a first and a second dimension. Instead, the noted language merely discusses how a proxy server can communicate with a server through mixed paths. Although the noted passage discusses how the proxy server can also record user specific information, this is not the same wherein each record being linked in a first and a second dimension, much less, that the first dimension links records with a same user identifier in a sequence according to the item identifier, and that the second dimension links records with a same item identifier in a sequence according to the user identifier.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least independent claim 7.

**REJECTION OF INDEPENDENT CLAIM 8 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 8 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Independent claim 8 recites, in pertinent part:

receiving a recommendation request comprising a selected item list

from the advisee for the recommendation by a recommendation system;  
in response to the recommendation request, computing a plurality  
of similarity factors based on at least one advisee profile from at least one  
newly rated item and determining which at least one user has already  
rated the item, and  
generating a recommendation of at least one item from the selected item  
list based on ratings provided by each neighboring user.

In rejecting independent claim 8, the Examiner refers to the arguments made in rejecting claims 1-7. Appellants disagree with this rejection at least for the same reasons as those presented in traversing the rejection of claim 1. Furthermore, Appellants note that claim 8 additionally recites selecting a first set of users from a group of users of the recommendation system based on the selected item list and selecting neighboring users from the first set of users based on similarities between the advisee and each member of the first set of users. The Examiner has simply not demonstrated that these features are disclosed or suggested by HERZ.

On page 11 of the Final Office Action, the Examiner appears to request that Appellants read the entire disclosure of HERZ for other language which may possibly disclose or suggest features recited in the claims. Appellants note that it is the Examiner, not Appellants, who bears the initial burden in establishing a case of unpatentability or obviousness. Appellants submit that the Examiner has not set forth a *prima facie* case of obviousness at least because the Examiner has failed to identify where in HERZ there is disclosed or suggested each and every feature recited in the claims. Appellants refer the Examiner to MPEP 2142 which states:

The legal concept of *prima facie* obviousness is a procedural tool of examination which applies broadly to all arts. It allocates who has the burden of going forward

with production of evidence in each step of the examination process. See *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In re Linter*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Saunders*, 444 F.2d 599, 170 USPQ 213 (CCPA 1971); *In re Tiffin*, 443 F.2d 394, 170 USPQ 88 (CCPA 1971), amended, 448 F.2d 791, 171 USPQ 294 (CCPA 1971); *In re Warner*, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968). The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness. If, however, the examiner does produce a *prima facie* case, the burden of coming forward with evidence or arguments shifts to the applicant who may submit additional evidence of nonobviousness, such as comparative test data showing that the claimed invention possesses improved properties not expected by the prior art. The initial evaluation of *prima facie* obviousness thus relieves both the examiner and applicant from evaluating evidence beyond the prior art and the evidence in the specification as filed until the art has been shown to suggest the claimed invention. (Emphasis Added).

### **ESTABLISHING A *PRIMA FACIE* CASE OF OBVIOUSNESS**

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See **MPEP § 2143 - § 2143.03** for decisions pertinent to each of these criteria. (Emphasis Added).

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). See **MPEP § 2144 - § 2144.09** for examples of reasoning supporting obviousness rejections. (Emphasis Added).

Furthermore, to the extent that the Examiner is basing the instant rejection of

claim 8 on an argument of inherency consistent with MPEP 2112, Appellants note that MPEP 2112 specifically states, in part:

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original) (Applicant's invention was directed to a biaxially oriented, flexible dilation catheter balloon (a tube which expands upon inflation) used, for example, in clearing the blood vessels of heart patients). The examiner applied a U.S. patent to Schjeldahl which disclosed injection molding a tubular preform and then injecting air into the preform to expand it against a mold (blow molding). The reference did not directly state that the end product balloon was biaxially oriented. It did disclose that the balloon was "formed from a thin flexible inelastic, high tensile strength, biaxially oriented synthetic plastic material." *Id.* at 1462 (emphasis in original). The examiner argued that Schjeldahl's balloon was inherently biaxially oriented. The Board reversed on the basis that the examiner did not provide objective evidence or cogent technical reasoning to support the conclusion of inherency.).

The Examiner has neither stated that the rejection is based on inherency, nor provided any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least independent claim 8.

#### **REJECTION OF DEPENDENT CLAIM 2 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 2 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be

reversed, and the application should be remanded to the Examiner.

Dependent claim 2 depends from claim 1 and further recites, in pertinent part:

wherein all items upon which the step of computing depends are included in the selected item list.

The Examiner explains that col. 16, lines 34-48 teaches this feature. Appellants disagree. The noted language merely states the following:

A related technique is to replace each word by its morphological stem, so that "staple", "stapler", and "staples" are all replaced by "staple." Common function words ("a", "and", "the" . . .) can influence the calculated similarity of texts without regard to their topics, and so are typically removed from the text before the scores of terms in the text are computed. A more general approach to recognizing synonyms is to use a revised measure of the distance between textual attribute vectors V and U, namely  $\text{arccos}(\text{AV}(\text{AU})^t / \sqrt{\text{AV}(\text{AV})^t} \cdot \text{AU}(\text{AU})^t)$ , where the matrix A is the dimensionality-reducing linear transformation (or an approximation thereto) determined by collecting the vector values of the textual attribute, for all target objects known to the system, and applying singular value decomposition to the resulting collection.

While it is apparent that the above-noted language discusses how vector values can be determined for all target objects known to the system, this is not the same as wherein all items upon which the step of computing depends are included in the selected item list. Neither vector values nor target objects constitute items from a selected item list which indicate similarity as defined in claim 1, and the Examiner has not demonstrated otherwise.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least dependent claim 2.

**REJECTION OF DEPENDENT CLAIM 3 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 3 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Dependent claim 3 depends from claims 1 and 2, and further recites, in pertinent part:

wherein the recommendation of at least one item includes only items that are included in the selected item list.

The Examiner explains that col. 26, lines 22-45 teaches this feature. Appellants disagree. The noted language merely states the following:

1. Initialize list of identified target objects to the empty list at step 13A00
2. Initialize the current tree T to be the hierarchical cluster tree of all objects at step 13A01 and at step 13A02 scan the current cluster tree for target objects similar to P, using the process detailed in FIG. 13B. At step 13A03, the list of target objects is returned.
3. At step 13B00, the variable I is set to 1 and for each child subtree  $T_i$  of the root of tree T, is retrieved.
4. At step 13B02, calculate  $d(P, p_i)$ , the similarity distance between P and  $p_i$ ,
5. At step 13B03, if  $d(P, p_i) < t$ , a threshold, branch to one of two options
6. If tree  $T_i$  contains only one target object at step 13B04, add that target object to list of identified target objects at step 13B05 and advance to step 13B07.
7. If tree  $T_i$  contains multiple target objects at step 13B04, scan the ith child subtree for target objects similar to P by invoking the steps of the process of FIG. 13B recursively and then recurse to step 3 (step 13A01 in FIG. 13A) with T bound for the duration of the recursion to tree  $T_i$ , in order to search in tree  $T_i$  for target objects with profiles similar to P.

While it is apparent that the above-noted language discusses how target objects

with similar profiles are searched, this is not the same as wherein the recommendation of at least one item includes only items that are included in the selected item list.

Target objects do not constitute only items from a selected item list which indicate similarity as defined in claim 1, and the Examiner has not demonstrated otherwise.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least dependent claim 3.

**REJECTION OF DEPENDENT CLAIM 4 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 4 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Dependent claim 4 depends from claim 1, and further recites, in pertinent part: wherein the step of selecting neighboring users excludes, any user whose similarity with the advisee is below a predetermined threshold.

The Examiner explains that col. 88, lines 8-37 teaches this feature. Appellants disagree. The noted language merely states the following:

Once Virtual Community Service identifies a cluster C of messages, users, search profiles, or target objects that determines a pre-community M, it attempts to arrange for the members of this pre-community to have the chance to participate in a common virtual community V. In many cases, an existing virtual community V may suit the needs of the pre-community M. Virtual Community Service first attempts to find such an existing community V. In the case where cluster C is a cluster of messages, V may be chosen to be any existing virtual community such that the cluster profile of cluster C is within a threshold distance of the mean profile of the set of messages recently posted to virtual community V; in the case where cluster C is a cluster of users, V may be chosen to be any

existing virtual community such that the cluster profile of cluster C is within a threshold distance of the mean user profile of the active members of virtual community V; in the case where the cluster C is a cluster of search profiles, V may be chosen to be any existing virtual community such that the cluster profile of cluster C is within a threshold distance of the cluster profile of the largest cluster resulting from clustering all the search profiles of active members of virtual community V; and in the case where the cluster C is a cluster of one or more target objects chosen from a separate browsing or filtering system, V may be chosen to be any existing virtual community initiated in the same way from a cluster whose cluster profile in that other system is within a threshold distance of the cluster profile of cluster C. The threshold distance used in each case is optionally dependent on the cluster variance or cluster diameter of the profile sets whose means are being compared.

While it is apparent that the above-noted language discusses how threshold distances of the mean user profile of the active members of a virtual community can be utilized, this is not the same as wherein the step of selecting neighboring users excludes, any user whose similarity with the advisee is below a predetermined threshold. Establishing a virtual community using distances is simply not the same as excluding any user whose similarity with the advisee is below a predetermined threshold as defined in claim 4, and the Examiner has not demonstrated otherwise.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least dependent claim 4.

#### **REJECTION OF DEPENDENT CLAIM 5 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 5 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Dependent claim 5 depends from claim 1, and further recites, in pertinent part:

wherein the step of computing and the step of selecting are executed substantially in parallel by inserting each newly computed similarity factor into a neighbor list in decreasing order of similarity and by limiting length of the neighbor list by excluding a user with lowest similarity if otherwise the neighbor list would exceed a predetermined length.

The Examiner explains that col. 18, lines 5-8 teach this feature. Appellants disagree. The noted language merely states the following:

To prevent users from being flooded with responses, it may be desirable to limit the number of notifications each user receives to a fixed number, such as ten per day.

While it is apparent that the above-noted language discusses how the system can limit the number of notifications per day that can be received, this is not the same as wherein the step of computing and the step of selecting are executed substantially in parallel by inserting each newly computed similarity factor into a neighbor list in decreasing order of similarity and by limiting length of the neighbor list by excluding a user with lowest similarity if otherwise the neighbor list would exceed a predetermined length as defined in claim 5, and the Examiner has not demonstrated otherwise.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least dependent claim 5.

#### **REJECTION OF DEPENDENT CLAIM 6 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 6 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be

reversed, and the application should be remanded to the Examiner.

Dependent claim 6 depends from claim 1, and further recites, in pertinent part:

the step of caching identifiers of the neighboring users, associated similarity factors, and time stamps

The Examiner explains that col. 5, lines 55-57 teaches this feature. Appellants disagree. The noted language merely states the following:

The proxy server dissociates the user's true identity from the pseudonym by the use of cryptographic techniques.

While it is apparent that the above-noted language discusses how a proxy server dissociates the user's true identity from the pseudonym, this is not suggestive of a step of caching identifiers of the neighboring users, associated similarity factors, and time stamps, and the Examiner has not demonstrated otherwise.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least dependent claim 6.

#### **REJECTION OF DEPENDENT CLAIM 9 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 9 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Dependent claim 9 depends from claim 8, and further recites, in pertinent part:

wherein the similarities are determined from an advisee profile and user profiles, and the advisee and user profiles are based on advise and user behavior including at least one of buying pattern, item ratings, bookmarked

websites, website usage pattern, and user action relative to a particular item.

The Examiner explains on page 11 of the Final Office Action that this claim is rejected for the same reasons as those asserted in the rejection of claims 1-8. This is improper at least because the features of claim 9 are not recited in claims 1-8. Claim 9 recites, for example, that the advisee and user profiles are based on advise and user behavior including at least one of buying pattern, item ratings, bookmarked websites, website usage pattern, and user action relative to a particular item. These features are not recited in claims 1-8 and the Examiner has not demonstrated otherwise. Thus, in addition to the reasons set forth above regarding claims 1-8, the Examiner has failed to set forth a *prima facie* case of unpatentability as to claim 9.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least dependent claim 9.

#### **REJECTION OF DEPENDENT CLAIM 11 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 11 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Dependent claim 11 depends from claim 8, and further recites, in pertinent part:

further comprising assigning a confidence factor to each advisee profile and each user profile, wherein the confidence factor is based on the combined effect of selected pieces of information recorded in a user or advisee profile.

The Examiner explains on page 11 of the Final Office Action that this claim is

rejected for the same reasons as those asserted in the rejection of claims 1-8. This is improper at least because the features of claim 11 are not recited in claims 1-8. Claim 11 recites, for example, assigning a confidence factor to each advisee profile and each user profile, wherein the confidence factor is based on the combined effect of selected pieces of information recorded in a user or advisee profile. This feature is not recited in claims 1-8 and the Examiner has not demonstrated otherwise. Thus, in addition to the reasons set forth above regarding claims 1-8, the Examiner has failed to set forth a *prima facie* case of unpatentability as to claim 11.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least dependent claim 11.

**REJECTION OF DEPENDENT CLAIM 12 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 12 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Dependent claim 12 depends from claim 8, and further recites, in pertinent part: further including determining similarities between the advisee and each member of the first set of users after receiving a selected item list from the advisee.

The Examiner explains on page 11 of the Final Office Action that this claim is rejected for the same reasons as those asserted in the rejection of claims 1-8. This is improper at least because the features of claim 12 are not recited in claims 1-8. Claim {P27032 00295306.DOC}

12 recites, for example, determining similarities between the advisee and each member of the first set of users after receiving a selected item list from the advisee. This feature is not recited in claims 1-8 and the Examiner has not demonstrated otherwise. Thus, in addition to the reasons set forth above regarding claims 1-8, the Examiner has failed to set forth a *prima facie* case of unpatentability as to claim 12.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least dependent claim 12.

**REJECTION OF DEPENDENT CLAIM 13 UNDER 35 U.S.C. § 103 IS IN ERROR**

The rejection of claim 13 under 35 U.S.C. § 103(a) as being unpatentable over HERZ alone is in error, the decision of the Examiner to reject this claim should be reversed, and the application should be remanded to the Examiner.

Dependent claim 13 depends from claim 8, and further recites, in pertinent part:

wherein a member of the first set of users is selected as a neighboring user if the similarity between the advisee and the member of the first set of users is better than a predetermined threshold.

The Examiner explains on page 11 of the Final Office Action that this claim is rejected for the same reasons as those asserted in the rejection of claims 1-8. This is improper at least because the features of claim 13 are not recited in claims 1-8. Claim 13 recites, for example, wherein a member of the first set of users is selected as a neighboring user if the similarity between the advisee and the member of the first set of users is better than a predetermined threshold. This feature is not recited in claims 1-8

and the Examiner has not demonstrated otherwise. Thus, in addition to the reasons set forth above regarding claims 1-8, the Examiner has failed to set forth a *prima facie* case of unpatentability as to claim 13.

Because the above-noted document fails to disclose, or even suggest, at least the above-noted features of the instant invention, Appellants submit that no proper modification of this document renders unpatentable the combination of features recited in at least dependent claim 13.

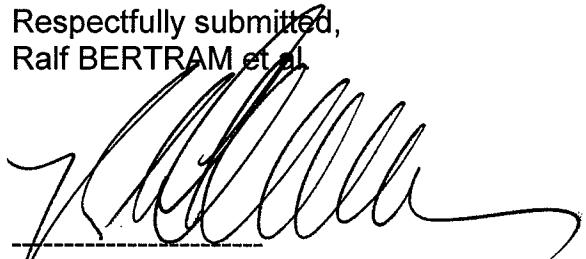
**REJECTION OF DEPENDENT CLAIMS 14-19 UNDER 35 U.S.C. § 103 IS IN ERROR**

Claims 14-19 stand or fall with the claims from which they depend.

**CONCLUSION**

Each of claims 1-19 are patentable under 35 U.S.C. §103(a). Specifically, the applied art of record, even in properly modified, fails to disclose or suggest the unique combination of features recited in Appellant's claims 1-19. Accordingly, Appellants respectfully request that the Board reverse the decision of the Examiner to reject claims 1-19 under 35 U.S.C. §103(a), and remand the application to the Examiner for withdrawal of the above-noted rejections.

Respectfully submitted,  
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Attachments: Claims Appendix,

Evidence Appendix, and

Related Proceedings Appendix

**VIII CLAIMS ON APPEAL**

1. A computerized method for generating a recommendation of an item to an advisee, comprising the steps of:

receiving a recommendation request comprising a selected item list from an advisee for a recommendation by a recommendation system;

in response to the recommendation request, computing a plurality of similarity factors based on:

at least one advisee profile from at least one newly rated item and determining which at least one user has already rated the item, wherein the advisee profile comprises a plurality of records, each record including a user identifier, an item identifier, and a rating value, such that each record is linked in a first and a second dimension; and

items from the selected item list that indicate similarity between the advisee and a plurality of users of the recommendation system who have previously provided ratings of items from the selected item list;

selecting, from the plurality of users of the recommendation system, neighboring users to the advisee, according to the similarity factors;

generating a recommendation of at least one item of the selected item list, according to the previously provided ratings of the at least one item by the neighboring users.

2. The method of claim 1, wherein all items upon which the step of computing depends are included in the selected item list.

3. The method of claim 2, wherein the recommendation of at least one item includes only items that are included in the selected item list.

4. The method of claim 1, wherein the step of selecting neighboring users excludes, any user whose similarity with the advisee is below a predetermined threshold.
5. The method of claim 1, wherein the step of computing and the step of selecting are executed substantially in parallel by inserting each newly computed similarity factor into a neighbor list in decreasing order of similarity and by limiting length of the neighbor list by excluding a user with lowest similarity if otherwise the neighbor list would exceed a predetermined length.
6. The method of claim 1, further including the step of caching identifiers of the neighboring users, associated similarity factors, and time stamps.
7. A user profile for a recommendation system, comprising a plurality of records, each record including a user identifier, an item identifier, and a rating value, wherein each record is linked in a first and a second dimension, the first dimension linking records with a same user identifier in a sequence according to the item identifier, and the second dimension linking records with a same item identifier in a sequence according to the user identifier.
8. A computerized method for generating a recommendation of an item to an advisee, comprising the steps of:
  - receiving a recommendation request comprising a selected item list from an advisee for the recommendation by a recommendation system;
  - in response to the recommendation request, computing a plurality of similarity factors based on at least one advisee profile from at least one newly rated item and determining which at least one user has already rated the item;
  - selecting a first set of users from a group of users of the recommendation system based on the selected item list;

selecting neighboring users from the first set of users based on similarities between the advisee and each member of the first set of users; and

generating a recommendation of at least one item from the selected item list based on ratings provided by each neighboring user.

9. The computerized method of claim 8, wherein the similarities are determined from an advisee profile and user profiles, and the advisee and user profiles are based on advise and user behavior including at least one of buying pattern, item ratings, bookmarked websites, website usage pattern, and user action relative to a particular item.

10. The computerized method of claim 9, wherein an advisee profile or a user profile is updated when a new piece of information is added thereto.

11. The computerized method of claim 8, further comprising assigning a confidence factor to each advisee profile and each user profile, wherein the confidence factor is based on the combined effect of selected pieces of information recorded in a user or advisee profile.

12. The computerized method of claim 8, further including determining similarities between the advisee and each member of the first set of users after receiving a selected item list from the advisee.

13. The computerized method of claim 8, wherein a member of the first set of users is selected as a neighboring user if the similarity between the advisee and the member of the first set of users is better than a predetermined threshold.

14. The computerized method of claim 8, further comprising assigning a weight to each neighboring user where the weight is greater for a neighboring user have

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greater similarity to the advisee and the weight is lower for a neighboring user having a lower similarity to the advisee.

15. The method of claim 1, further comprising updating the selected neighboring users each time a new rating is entered or inferred during the recommendation request.

16. The system of claim 7, wherein the system updates selected neighboring users each time a new rating is entered or inferred during a recommendation request.

17. The method of claim 8, further comprising updating the selected neighboring users each time a new rating is entered or inferred during the recommendation request.

18. The method of claim 1, wherein the selected neighboring users are users who have a similarity factor which is better than a predetermined threshold value.

19. The method of claim 8, wherein the selected neighboring users are users who have a similarity factor which is better than a predetermined threshold value.

**IX      EVIDENCE APPENDIX**

This section lists evidence submitted pursuant to 37 C.F.R. §§1.130, 1.131, or 1.132, or any other evidence entered by the Examiner and relied upon by Appellant in this appeal, and provides for each piece of evidence a brief statement setting forth where in the record that evidence was entered by the Examiner. Copies of each piece of evidence are provided as required by 37 C.F.R. §41.37(c)(ix).

| NO. | EVIDENCE | BRIEF STATEMENT SETTING FORTH WHERE IN THE RECORD THE EVIDENCE WAS ENTERED BY THE EXAMINER |
|-----|----------|--|
| 1   | N/A      | N/A  |

**X      RELATED PROCEEDINGS APPENDIX**

Pursuant to 37 C.F.R. §41.37(c)(x), copies of the following decisions rendered by a court of the Board in any proceeding identified above under 37 C.F.R. §41.37(c)(1)(ii) are enclosed herewith.

| NO. | TYPE OF PROCEEDING | REFERENCE NO. | DATE |
|-----|--------------------|---------------|------|
| 1   | N/A                | N/A           | N/A  |